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$$\begin{array}{ccccccc} & + & & + & & + & \\ & \downarrow & & \downarrow & & \downarrow & \\ 1 & , & 4 & , & 16 & , & 64 & , \dots \end{array} \rightarrow a_n = 4n - 3$$

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$$c_n = \frac{4n-3}{4n-3} = 1$$

$$4n - 3 < 4n + 9$$

$$4n < 12 \quad n < \frac{12}{4} \quad n < 3 \rightarrow 1, 2$$

$$c = 0, 4, 9, 16, 25, \dots$$

$$\begin{array}{ccccccc} & + & & + & & + & \\ & \downarrow & & \downarrow & & \downarrow & \\ 0 & , & 4 & , & 9 & , & 16 & , \dots \end{array}$$

$$4 = -\frac{r}{r}(1)^r + b(1) + 0$$

$$b = 4$$

$$a_n = -\frac{r}{r}n^r + \frac{4}{r}n \rightarrow r(-\frac{r}{r}) + 4(\frac{4}{r}) = 4$$

$$c = -4, -4, -4, -4, \dots$$

$$\begin{array}{ccccccc} & + & & + & & + & \\ & \downarrow & & \downarrow & & \downarrow & \\ -4 & , & -4 & , & -4 & , & -4 & , \dots \end{array}$$

$$a = -4$$

$$c = -4$$

$$-4 = 1(1)^r + b(1) - 4$$

$$b = 0 \quad a_n = n^r - n - 4$$

$$a = 1$$

$$a_f = a_v + r d = 1$$

$$r d = 0 \rightarrow d = 0$$

$$b = 4n + 1$$

$$n^r - n - 4 = 4n + 1$$

$$n(n-4) = 5 \rightarrow n = 5$$

$$a_n = b_n = 4(5) + 1 = 21$$